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7590	02/13/2004		EXAMINER	
Iandiorio & Teska 260 Bear Hill Road Waltham, MA 02451-1018				WILLS, MONIQUE M
			ART UNIT	PAPER NUMBER
			1746	

DATE MAILED: 02/13/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	09/779,972	PIEN ET AL.
	Examiner Wills M Monique	Art Unit 1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 21 November 2003.

2a) This action is **FINAL**.      2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-44 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) 43 is/are allowed.

6) Claim(s) 1-14, 16-32, 34-42 and 44 is/are rejected.

7) Claim(s) 15 and 33 is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 19 February 2001 is/are: a) accepted or b) objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. §§ 119 and 120

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some \* c) None of:

    1. Certified copies of the priority documents have been received.

    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.

    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

13) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) The translation of the foreign language provisional application has been received.

14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

#### Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.

4) Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.

5) Notice of Informal Patent Application (PTO-152)

6) Other: \_\_\_\_\_

**DETAILED ACTION**

***Response to Amendment***

This Office Action is responsive to the Amendment filed October 27, 2003. The objection of claims 17-18 under 37 CFR 1.75(c), has been overcome in light of Applicant's amendment to the claims. The rejection of claims 1-9, 11-14, 19, 20, 22-27, 29-32, 35 & 37- 38 & 40 under 35 U.S.C. 102(e) as being anticipated by Yang et al. U.S. Patent 6,322,919 has been overcome. The rejection of claims 10 & 28 under 35 U.S.C. 103(a) as being unpatentable over Yang et al. U.S. Patent 6,322,919 in view of Saito et al. U.S. Patent 6,436,567 is overcome. The rejection of claims 21 & 39 under 35 U.S.C. 103(a) as being unpatentable over Yang et al. U.S. Patent 6,322,919 in view of Wilson et al. U.S. Patent 6,248,467 is overcome. The rejection of claims 15, 21, 33 & 39 under 35 U.S.C. 103(a) as being unpatentable over Molter U.S. Pub. No. 2001/0049044 in view of Wilson et al. U.S. Patent 6,248,467 has been overcome.

However, the rejection of claims 1-7, 14, 22-25, 32, 35, 36,40 & 41-42 under 35 U.S.C. 102(e) as being anticipated by Molter U.S. Pub. No. 2001/0049044 has been reapplied, in light of Applicant's arguments, to further clarify the anticipatory nature of the reference. Newly added claims 41-42, have also been rejected under 35 U.S.C. 102(e) as being anticipated by Molter U.S. Pub. No. 2001/0049044. The rejection of claims 16 & 34 under 35 U.S.C. 112, second paragraph, is maintained. Claims 1-8,14,19,22-26,32,37 and 40 are rejected under 35 U.S.C. 102(e) as being

anticipated by Cisar et al. U.S. Patent 6,638,657. Claims 1-9, 11-14, 17-19, 20, 22-27, 29-32, 35,37– 38 & 40 are rejected 35 U.S.C. 103(a) as being unpatentable over Yang et al. U.S. Patent 6,322,919 in view of Marchetti U.S. Patent 6,284,401. Claims 10 & 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang et al. U.S. Patent 6,322,919, in view of Marchetti U.S. Patent 6,284,401and further in view of Saito et al. U.S. Patent 6,436,567. Claims 21 & 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang et al. U.S. Patent 6,322,919 in view of Marchetti U.S. Patent 6,284,401and further in view of Wilson et al. U.S. Patent 6,248,467. Claim 11 is rejected 35 U.S.C. 103(a) as being unpatentable over Cisar et al. U.S. Patent 6,638,657, as applied to claim 1 above, and further in view of Yoshimoto et al. U.S. Patent 6,180,274. Claim 12 is rejected 35 U.S.C. 103(a) as being unpatentable over Cisar et al. U.S. Patent 6,638,657, as applied to claim 1 above, and further in view of Dong et al. U.S. Pub. 2002/0119360. Claim 44 is rejected 35 U.S.C. 103(a) as being unpatentable over Cisar et al. U.S. Patent 6,638,657. Claims 13,15, 31,33 & 43 are are rejected under 35 U.S.C. 103(a) as being unpatentable over Cisar et al. U.S. Patent 6,638,657 as applied to claim 1 above, and further in view of Mercuri et al. U.S. Patent 6,060,189

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 16 & 34 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 16 & 34 contain the trademark/trade name Union Carbide Grafoil®. Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to identify/describe material and, accordingly, the identification/description is indefinite.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 1-8,14,19,22-26,32,37 and 40 are rejected under 35 U.S.C. 102(e) as being anticipated by Cisar et al. U.S. Patent 6,638,657.

Cisar teaches a bipolar assembly equivalent to applicant's multipart separator plate. With respect to claims 1, 22 & 40, the bipolar plate includes: an impermeable gas barrier 62 equivalent to applicant's impervious separator layer; a frame 103 surrounding flow fields 104, wherein said flow fields are equivalent to the instant distributor plate; a gasket 107 with matting manifolds providing a sealing layer between the distributor plate and separator. See column 5, lines 55-68 and column 6, lines 1-10. Concerning claims 2 & 23, the frame 103, the separator layer 62 and the seal layer 107 include internal manifolds for delivering fluid. See column 5, lines 55-68 and column 6, lines 1-10. With respect to claim 3, the bipolar plate assembly may be used to deliver fuel and oxidant gas to the membrane electrode assembly (Fig. 1; col. 1. lines 20-50). Regarding claim 5, the distributor plate directs coolant fluid flow and internal manifold delivers to and

removes cooling fluid (col. 10, lines 10-25). Regarding claims 8 & 26, frame may be made of a polymer (col. 3, lines 45-55) or titanium steel (col. 4, lines 60-68).

Concerning claims 19 & 37, the separator layer 62 is made from a thin metal sheet (col. 4, lines 50-60). With respects to claims 4 & 23, the internal manifold delivers and removes fuel gas and oxidant gas to the distributor plate (Fig. 7A; col. 1, lines 45-60).

The prior art of Cisar anticipates the instant claims as set forth. The limitations in claims 6,7, 24 & 25 with respect to the frame being chemically and thermally stable at fuel cell operating temperatures is inherent as set forth in the prior art, because the frame is not destroyed when used in the fuel cell environment. The limitations in claims 14 & 32 with respect to the seal being chemically and thermally stable at fuel cell operating temperatures is inherent as set forth in the prior art, because the seal is not destroyed when used in the fuel cell environment.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-7, 14, 22-25, 32, 35, 36, 40 & 41-42 are rejected under 35 U.S.C. 102(e) as being anticipated by Molter U.S. Pub. No. 2001/0049044.

With respect to claims 1, 22 & 40-42, Molter teaches a multipart separator plate comprising a sealing gasket 38, a frame 33, and two distributor plates 43/34 (fig. 3). With respect to claims 2-5 & 23, the distributor plates include hydrogen, oxygen and coolant manifolds (Fig. 3 and ¶¶s 20-21 & 25), that direct hydrogen, oxygen and coolant to the membrane electrode assembly (¶29). With respect to claims 35 & 36, the gasses supplied to the fuel cell include hydrogen and methanol (¶14). The prior art of Molter anticipates the instant claims as set forth. The limitations in claims 1, 22 & 40-42 with respect to the impervious separator is set forth in the prior art, because the distributor plates of Molter function equivalently as distributor plates and impervious separator layers. Therefore, one plate may serve as a separator and the other plate may function as a distributor plate. The limitations in claims 6, 7, 24 & 25 with respect to the frame being chemically and thermally stable at fuel cell operating temperatures is inherent in the as set forth in the prior art, because the frame is not destroyed when used in the fuel cell environment. The limitations in claims 14 & 32 with respect to the seal being chemically and thermally stable at fuel cell operating temperatures is inherent as set forth in the prior art, because the seal is not destroyed when used in the fuel cell environment. The limitations of claims 41 & 42, with respect to the seal being flexible and slid able is set forth in the prior art, because the elastic properties of the seal make the seal malleable, and therefore, flexible and slid able.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 11 is rejected 35 U.S.C. 103(a) as being unpatentable over Cisar et al.

U.S. Patent 6,638,657, as applied to claim 1 above, and further in view of Yoshimoto et al. U.S. Patent 6,180,274.

Cisar teaches the invention of claim 1 except that the frame includes a recess on its inner periphery for accommodating the periphery of the electrode membrane assembly.

Yoshimoto teaches a bipolar plate 7 comprising a recessed portion 72 (col. 8, lines 40-60). The recess portion is sized to accommodate an electrode (col. 8, lines 40-60). The assembly reduces the number of seal members required between fuel or oxidant manifolds in fuel cell stacks (abstract).

The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the instant invention was made because even though the prior art of Cisar does not teach a recess in the frame, Yoshimoto discloses that recess assemblies accommodating the electrode structure of the fuel cell reduce the

number of sealing members required between the fuel and oxidant manifolds of the fuel cell stack, and therefore the skilled artisan would have employed the recesses of Yoshimoto in the frame of Cisar.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 12 is rejected 35 U.S.C. 103(a) as being unpatentable over Cisar et al. U.S. Patent 6,638,657, as applied to claim 1 above, and further in view of Dong et al. U.S. Pub. 2002/0119360.

Cisar teaches the invention of claim 1 except that the frame includes stops for directing the fluid flow in said distributor plate.

Dong teaches that it is conventional to employ obstacles or stops 10 in the major surfaces of flow field plates in order to create turbulent flow of the oxidant stream, thereby enhancing the flow of oxygen to the membrane electrode assembly.

Therefore, the subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the instant invention was made because even though the prior art of Cisar does not teach stops in the frame, Dong discloses that stops create turbulent flow of the oxidant stream, thereby enhancing the flow of oxygen to the

membrane electrode assembly and therefore, the skilled artisan would have employed the stops of Dong in the frame of Cisar.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 44 is rejected 35 U.S.C. 103(a) as being unpatentable over Cisar et al.

U.S. Patent 6,638,657.

Cisar teaches a bipolar plate including: an impermeable gas barrier 62 equivalent to applicant's impervious separator layer; a frame 103 surrounding flow fields 104, wherein said flow fields are equivalent to the instant distributor plate; a gasket 107 with matting manifolds providing a sealing layer between the distributor plate and separator. See column 5, lines 55-68 and column 6, lines 1-10. The Examiner would like to point out that the bipolar plate is hereinafter referred to as a first bipolar assembly. The first bipolar plate assembly is used in membrane electrode assemblies (col. 1, lines 20-25 and col. 8, lines 15-30).

The reference is silent to a second bipolar plate assembly circumscribing a membrane electrode assembly.

However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ first and second bipolar plate assemblies around a membrane electrode assembly, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. Cisar illustrates in Fig. 2 that it is well known to employ bipolar plates adjacent to membrane electrode assemblies. Bipolar plates function to connect adjacent cells. When three or more cells are used, the bipolar plates between the cells will provide a first plate assembly and second plate assembly circumscribing a membrane electrode assembly.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-9, 11-14, 17-19, 20, 22-27, 29-32, 35,37– 38 & 40 are rejected 35 U.S.C. 103(a) as being unpatentable over Yang et al. U.S. Patent 6,322,919 in view of Marchetti U.S. Patent 6,284,401.

Yang teaches a fuel cell bipolar plate assembly comprising a multipart separator plate comprising a distributor plate 12 for directing flow, a frame 14 surrounding the

distributor plate and an impervious separator layer 62 (Fig. 4 and col. 5, lines 20-55). The separator layer 62 includes fuel manifolds, oxidant manifolds, coolant manifolds for directing fluid flow and assembly apertures that correspond to those of the bipolar plate (col. 5, lines 35-45). The distributor plate and separator plate direct flow to the membrane electrode assembly 66 (col. 1, lines 15-50 & col. 5, lines 50-65). The frame 14 is made from suitable plastic materials such as polycarbonate or epoxy that is injection molded (col. 4, lines 50-55). The frame includes a recess on its inner periphery for accommodating the periphery of the MEA and includes stops for directing fluid flow (Figs. 2-3 and col. 3 lines 54-68 & col. 4 lines 1-15). Hydrogen fuel is supplied to the fuel cell stack (col. 1, lines 25-30). The separator layer 62 consists of graphite or stainless steel (col. 4, lines 40-45 & col. 5, lines 25-30).

The reference is silent to a seal layer between the separator layer and distributor plate.

Merchetti teaches that it is conventional to employ sealing gaskets between the constituents of bipolar plate assemblies, to prevent gases from cross-mixing in the cell. The gases are thereby distributed to the appropriate sides of the distributor and separator plates. See column 4, lines 10-20. The Examiner would like to point out that the distributor and separator plates, are the carbon cloth and graphite plates, respectively.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the sealing gaskets of Merchetti, between the separator layer and distributor plate of Yang, to prevent gases from cross-mixing in the

cell. Thereby, distributing gasses to the appropriate sides of the distributor and separator plate.

With respect to claims 6,7, 24 & 25, Yang teaches that the frame is made from suitable plastic materials such as polycarbonate or epoxy. It is reasonable to expect that these materials be thermally and chemically stable in a fuel cell environment because they maintain their structural integrity when used in said environment.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 10 & 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang et al. U.S. Patent 6,322,919, in view of Marchetti U.S. Patent 6,284,401 as applied to claims 1 and 22 above, and in view of Saito et al. U.S. Patent 6,436,567.

Yang in view of Marchetti, teaches a bipolar multipart separator plate as described hereinabove. Including Yang's teaching of a multipart separator comprising a frame that can be fabricated from any suitable plastic material including polycarbonate (col. 4, lines 50-55).

Yang is silent to employing polyvinyl material in the frame of the distributor plate.

Saito teaches the functional equivalence of polycarbonate and polyvinyl materials in separator plates for fuel cells.

The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the instant invention was made because even though Yang does not teach polyvinyl material in the frame, Saito teaches that polycarbonate and polyvinyl are art recognized equivalent material for use in separator plates for fuel cells, and therefore, one having ordinary skill in the art would have substituted one material for the other. Applicant's instant specification further discloses on page 8, lines 14-17, that any plastic material may be used as long as it is stable in fuel cell operating conditions.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 13,15, 31,33 & 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cisar et al. U.S. Patent 6,638,657 as applied to claims 1 & 22 above, and further in view of Mercuri et al. U.S. Patent 6,060,189,

Cisar teaches a bipolar plate assembly as described hereinabove.

The reference is silent to employing a sealing layer comprising a sheet of flexible graphite.

Mercuri teaches that it is conventional to employ flexible graphite sheets as seals in fluid flow plates (col. 6, lines 50-65), because the material is coherent with good handling strength (col. 2, lines 1-5).

The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the instant invention was made because even though Cisar does not teach a sealing layer comprising a flexible graphite sheet, Mercuri teaches that flexible graphite sheets are desired seals in flow field plates, because the material is coherent with good handling strength and therefore, one having ordinary skill in the art would have employed the graphite sheet of Mercuri in the bipolar plate of Cisar.

With respect to claims 13 & 31. Mercuri teaches that the graphite seal is electrically conductive.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 21 & 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang et al. U.S. Patent 6,322,919 in view of Marchetti U.S. Patent 6,284,401, as applied to claim 22 above, and in view of Wilson et al. U.S. Patent 6,248,467.

Yang in view of Marchetti, teaches a bipolar multipart separator plate, as described hereinabove, with the exception of the distributor plate comprising graphite.

Wilson teaches the use of graphite material in bipolar distributor plates, because the material is inexpensive, lightweight, readily available and chemically stable in fuel cell environments (col. 4, lines 30-45).

The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the instant invention was made because even though Yang does not teach the use of graphite material in the bipolar plate, Wilson teaches that graphite material in distributor plates, because the material is inexpensive, light weight, readily available and chemically stable in fuel cell environments, and therefore one having ordinary skill in the art would have employed graphite in the plate of Yang.

### ***Response to Arguments***

Applicants contend that the teachings of Yang do not anticipated applicant's claimed invention, because the reference does not include a seal layer. This assertion is correct and the rejection is overcome. Although Yang is not anticipatory, the

Examiner takes the position that Yang is obvious over the instant multipart separator plate, because it is well known to employ sealing layers to prevent cross-mixing of gases, as described hereinabove.

As to the application of Molter, applicants assert that the reference does not teach an impervious separator layer or a frame surrounding a distributor plate. Regarding the separator layer, Applicant correctly points out that the separator layer 50 is not part of Molter's bipolar plate. However, the reference remains anticipatory because the bipolar plate, as illustrated in Figure 3, has two distributor plates (43 & 34) that are functionally equivalent to separator layers. Thus providing a separator plate and distributor plate substantially as claimed. Concerning the frame, Molter clearly teaches a frame 33 circumscribing distributor plates 43/34 (Fig. 3). The frame is integrally connected to the distributor plate. If Applicant is taking the position that the frame must be separate from the distributor plate, the separable feature is not necessitated by the claims. Therefore, the fact that Molter's frame and distributor plate are molded from one piece does not negate anticipation of the reference.

Concerning the objection to claims 16 & 34 for the use of the trademark Union Carbide Grafoil®, it is applicant's position that the trademark does not render the claims indefinite according to MPEP 2173.05. More specifically, the trademark is clearly identified by adding the language "flexible graphite" to define the characteristics of Grafoil®. This assertion is not persuasive. According to MPEP 2173.05(u), if the

trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of the 35 U.S.C. 112, second paragraph. *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982); the claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product; in fact, the value of a trademark would be lost to the extent that it became descriptive of a product, rather than used as an identification of a source or origin of a product; thus, the use of a trademark or trade name in a claim to identify or describe a material or product would not only render a claim indefinite, but would also constitute an improper use of the trademark or trade name. In the instant case, the trademark is used as a claim limitation to identify a particular type of flexible graphite. *Grafoil*® is a source identifier used to indicate the manufacturer of the goods, not flexible graphite sheets themselves. Therefore, the claim does not comply with the requirements of 35 U.S.C. 112 second paragraph.

### ***Conclusions***

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Monique Wills whose telephone number is (571) 272-1309. The Examiner can normally be reached on Monday-Friday from 8:30am to 5:00 pm.

If attempts to reach Examiner by telephone are unsuccessful, the Examiner's supervisor, Randy Gulakowski, may be reached at 571-272-1302.

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Art Unit: 1746

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The Official fax number is 703-872-9306.

Mw

1/27/04

*Bruce Bell*  
BRUCE F. BELL  
PRIMARY EXAMINER  
GROUP 1746